UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/816,594	03/31/2004	Anurag Acharya	GOOGP024	8411

			EXAMINER
23689	7590	12/07/2006	CONTINO, PAUL F

Jung-hua Kuo
Attorney At Law
PO Box 3275
Los Altos, CA 94024

ART UNIT	PAPER NUMBER
2114	

DATE MAILED: 12/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
	10/816,594	ACHARYA ET AL.
Office Action Summary	Examiner	Art Unit
	Paul Contino	2114

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>31 March 2004</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-32</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-32</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>31 March 2004</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION: Non-Final Rejection

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

1.   Claims 1-10 and 22-32 rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 1-10 are not limited to tangible embodiments. The term "module" as used in the claims, and when read in light of the Applicant's disclosure, may be interpreted as a program or software entity. Computer software programs themselves may not be patented.

Claims 22-32 are not limited to tangible embodiments. In view of Applicant's disclosure, Specification page 15, paragraph [0036], the system is not limited to tangible embodiments, instead being defined as including both nonspecific tangible embodiments (e.g. disks, ROM, RAM) and intangible embodiments (e.g. carrier waves). As such, the claims are not limited to statutory subject matter and are therefor non-statutory.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2.   Claims 1-32 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for

failing to particularly point out and distinctly claim the subject matter which applicant regards as

the invention.

Claim 1 recites the limitation "the available replacement machines" in line 4. There is

insufficient antecedent basis for this limitation in the claim. Claims 2-10 are rejected based upon

their dependency to claim 1.

Claim 11 recites the limitation "the available replacement machines" in line 5. There is

insufficient antecedent basis for this limitation in the claim. Claims 12-21 are rejected based

upon their dependency to claim 11.

Claim 22 recites the limitation "the available replacement machines" in line 6. There is

insufficient antecedent basis for this limitation in the claim. Claims 23-32 are rejected based

upon their dependency to claim 22.

Claims 9, 20, and 31 recite the limitation "another copy" in lines 2, 2, and 3, respectively.

There is insufficient antecedent basis for this limitation in the claims. The term "another"

implies that a first copy of a failed "machine" has already been made. Claims 10, 21, and 32 are

rejected based upon their dependencies to claims 9, 20, and 31, respectively.

*   *   *

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making
and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it

> pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode
> contemplated by the inventor of carrying out his invention.

3.   Claims 9, 10, 20, 21, 31, and 32 are rejected under 35 U.S.C. 112, first paragraph, as

failing to comply with the enablement requirement. The claims contain subject matter which

was not described in the specification in such a way as to enable one skilled in the art to which it

pertains, or with which it is most nearly connected, to make and/or use the invention.

The Applicant's Specification states on page 6 in paragraph [0018] that, in general, a

"machine" is defined as a physical entity and a "server" is defined as an application entity. It is

interpreted that servers are being copied and machines are running the servers. Therefor,

copying of a "machine", as defined in claims 9, 10, 20, 21, 31, and 32, described in the

Specification in paragraph [0022] on pages 9 and 10, and when read in light of paragraph [0018],

would not enable one skilled in the art to make and/or use the invention. The Applicant is also

encouraged to review the Specification for any other non-enabling descriptions pertaining to a

machine being copied or similar.

Claim Objections

4.   Claims 3, 13, and 24 are objected to because of the following informalities: the statement

"the other machines" does not by itself specify any relation as to which machines "other" pertain

to. The Examiner recommends that the Application include a relative limitation such as

"machines other than the failed machine" or "machines other than the available replacement

machines". Appropriate correction is required.

5.   Claims 18 and 29 are objected to because of the following informalities: the first "identifying" in lines 3 and 4, respectively, which is assumed to be referring to the identification of a fault, is interpreted as having already occurred in order to initiate an attempt to repair the fault. Identifying the fault for a second time is determined to be unnecessary (see Specification on pages 9 and 10 in paragraph [0022]), including a failure to further limit the initial "identifying" step of independent base claims 11 and 22, respectively. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6.   Claims 1-17, 20-28, 31, and 32 are rejected under 35 U.S.C. 102(e) as being anticipated by Thomas (U.S. PGPub 2005/0026486 A1).

As in claim 1, Thomas discloses a system for automatic replacement of machines in a computer network, comprising:

a database of configuration information, the database including configuration information for [[the]] available replacement of machines and for a failed machine *(paragraphs [0031], [0041], [0042], [0046], and [0061], where it is interpreted that configuration information for each replacement/failed machine blade 104 is stored in a blade management database EEPROM 212)*;

a machine assignment module in communication with the database and configured to identify and assign one of the available replacement machines as a replacement machine for the failed machine based on a comparison of the configuration information for the failed machine to that for the available replacement machines *(paragraphs [0046], [0056], [0057], and [0061]-[0063], where manager 106 is interpreted as a machine assignment module)*; and

a configuration module in communication with the machine assignment module for generating configuration data for replacement of the failed machine with the replacement machine in the computer network *(paragraphs [0031] and [0061], where configuration information being sent to a replacement module 104 is interpreted as a configuration module 106 generating the configuration data for the replacement machine 104. The Examiner interprets the blade manager 106 as being both a machine assignment module and a configuration module, based upon the multiple functions that the machine manager executes.)*.

As in claim 2, Thomas discloses that the database of configuration information includes configuration information for active machines in the computer network *(paragraphs [0041], [0042], and [0046], where it is interpreted that EEPROM database 212 stored configuration information for each active blade machine 104)*.

As in claim 3, Thomas discloses an installation module in communication with the configuration module and configured to cause the configuration data generated by the configuration module to take effect in at least some of the other machines in the computer network *(paragraphs [0047] and [0061], where the configuration information from the blade manager 106 database 212 is interpreted as being sent to take effect in a replacement machine 104, which is interpreted as a machine other than the failed machine 104)*.

As in claim 4, Thomas discloses the installation module is further configured to cause the configuration data to take effect in machines in the computer network that are dependent upon the failed machine *(paragraphs [0042]-[0045] and [0053]-[0057], where the blade manager machine 106 is interpreted as being dependent upon an eventual failed machine for retrieving its configuration data for replacement server blade machines 104 ultimately dependent upon the same configuration data; the manager 106 is dependent upon the failed blade 104 for its configuration information in order to update replacement blades, and the replacement blade 104 is dependent upon the failed blade 104 for its configuration information in order to operate functionally equivalent to the failed blade 104 it is replacing)*.

As in claim 5, Thomas discloses the machine assignment module is further configured to compare a predetermined set of configuration parameters of the failed machine to those of the available replacement machines *(paragraphs [0040], [0043], and [0063], where the serial numbers and key values are interpreted as predetermined configuration parameters)*.

As in claim 6, Thomas discloses the predetermined set of configuration parameters includes at least one of processor speed, disk drive size, and amount of random access memory (RAM) *(paragraph [0040], memory 306 and capabilities 312)*.

As in claim 7, Thomas discloses a detection module configured to detect fault in at least one of a software component and a hardware component in the machines in the computer network *(paragraph [0057])*, wherein upon detection of the fault in the failed machine, the machine assignment module identifies and assigns the replacement machine *(paragraph [0063], where blade manager 106 is interpreted as being and/or containing a detection module)*.

As in claim 8, Thomas discloses a repair module configured to attempt to repair the fault identified by the detection module in the failed machine *(paragraph [0061], where the sending of configuration information by the repair module blade manager 106 to the replaced blade 104 is interpreted as attempting to repair a fault)*.

As in claim 9, Thomas discloses a replacement module configured to copy data from another copy of the failed machine in the network into the replacement machine identified by the machine assignment module *(paragraph [0031], where it is interpreted that the replacement module manager 106 stores a copy of a[n eventually] failed blade machine 104 in memory 212 and copies and sends that data to a replacement blade machine 104)*.

As in claim 10, Thomas discloses the failed machine and the another copy of the failed machine in the computer network are selected from the group consisting of a front end server, a load balancer, an index server, and a cache server *(paragraph [0033], server blade)*.

As in claim 11, Thomas discloses a method for automatic replacement of machines in a computer network, comprising:

identifying a failed machine in the computer network *(paragraph [0063])*;

performing a lookup in a database of configuration information containing configuration information for [[the]] available replacement machines and for the failed machine *(paragraphs [0031], [0041], [0042], [0046], and [0061], where it is interpreted that configuration information for each replacement/failed machine blade 104 is stored in a blade management database EEPROM 212)*;

identifying and assigning a replacement machine selected from the available replacement machines, the identifying and assignment being based on a comparison of the configuration information for the failed machine to that of the available replacement machines *(paragraphs [0046], [0056], [0057], and [0061]-[0063])*; and

generating configuration data for replacement of the failed machine with the replacement machine in the computer network *(paragraphs [0031] and [0061], where configuration information being sent to a replacement module 104 is interpreted as a configuration module 106 generating the configuration data for the replacement machine 104)*.

As in claim 12, Thomas discloses that the database of configuration information includes configuration information for active machines in the computer network *(paragraphs [0041], [0042], and [0046], where it is interpreted that EEPROM database 212 stored configuration information for each active blade machine 104).*

As in claim 13, Thomas discloses causing the configuration data generated to take effect in at least some of the other machines in the computer network *(paragraphs [0047] and [0061], where the configuration information from the blade manager 106 database 212 is interpreted as being sent to take effect in a replacement machine 104, which is interpreted as a machine other than the failed machine 104).*

As in claim 14, Thomas discloses causing the configuration data to take effect in machines in the computer network that are dependent upon the failed machine *(paragraphs [0042]-[0045] and [0053]-[0057], where the blade manager machine 106 is interpreted as being dependent upon an eventual failed machine for retrieving its configuration data for replacement server blade machines 104 ultimately dependent upon the same configuration data; the manager 106 is dependent upon the failed blade 104 for its configuration information in order to update replacement blades, and the replacement blade 104 is dependent upon the failed blade 104 for its configuration information in order to operate functionally equivalent to the failed blade 104 it is replacing).*

As in claim 15, Thomas discloses comparing a predetermined set of configuration parameters of the failed machine to those of the available replacement machines *(paragraphs [0040], [0043], and [0063], where the serial numbers and key values are interpreted as predetermined configuration parameters)*.

As in claim 16, Thomas discloses the predetermined set of configuration parameters includes at least one of processor speed, disk drive size, and amount of random access memory (RAM) *(paragraph [0040], memory 306 and capabilities 312)*.

As in claim 17, Thomas discloses detecting fault in at least one of a software component and a hardware component in the machines in the computer network *(paragraph [0057])*.

As in claim 20, Thomas discloses copying data from another copy of the failed machine in the network into the replacement machine *(paragraph [0031], where it is interpreted that the replacement module manager 106 stores a copy of a[n eventually] failed blade machine 104 in memory 212 and copies and sends that data to a replacement blade machine 104)*.

As in claim 21, Thomas discloses the failed machine and the another copy of the failed machine in the computer network are selected from the group consisting of a front end server, a load balancer, an index server, and a cache server *(paragraph [0033], server blade)*.

As in claim 22, Thomas discloses a computer program product embodied on a computer-readable medium, the computer program product including instructions which when executed by a computer system are operable to cause the computer system to perform acts comprising:

identifying a failed machine in the computer network *(paragraph [0063])*;

performing a lookup in a database of configuration information containing configuration information for [[the]] available replacement machines and for the failed machine *(paragraphs [0031], [0041], [0042], [0046], and [0061], where it is interpreted that configuration information for each replacement/failed machine blade 104 is stored in a blade management database EEPROM 212)*;

identifying and assigning a replacement machine selected from the available replacement machines, the identifying and assignment being based on a comparison of the configuration information for the failed machine to that of the available replacement machines *(paragraphs [0046], [0056], [0057], and [0061]-[0063])*; and

generating configuration data for replacement of the failed machine with the replacement machine in the computer network *(paragraphs [0031] and [0061], where configuration information being sent to a replacement module 104 is interpreted as a configuration module 106 generating the configuration data for the replacement machine 104)*.

As in claim 23, Thomas discloses that the database of configuration information includes configuration information for active machines in the computer network *(paragraphs [0041], [0042], and [0046], where it is interpreted that EEPROM database 212 stored configuration information for each active blade machine 104)*.

As in claim 24, Thomas discloses causing the configuration data generated to take effect in at least some of the other machines in the computer network *(paragraphs [0047] and [0061], where the configuration information from the blade manager 106 database 212 is interpreted as being sent to take effect in a replacement machine 104, which is interpreted as a machine other than the failed machine 104).*

As in claim 25, Thomas discloses causing the configuration data generated to take effect in machines in the computer network that are dependent upon the failed machine *(paragraphs [0042]-[0045] and [0053]-[0057], where the blade manager machine 106 is interpreted as being dependent upon an eventual failed machine for retrieving its configuration data for replacement server blade machines 104 ultimately dependent upon the same configuration data; the manager 106 is dependent upon the failed blade 104 for its configuration information in order to update replacement blades, and the replacement blade 104 is dependent upon the failed blade 104 for its configuration information in order to operate functionally equivalent to the failed blade 104 it is replacing).*

As in claim 26, Thomas discloses comparing a predetermined set of configuration parameters of the failed machine to those of the available replacement machines *(paragraphs [0040], [0043], and [0063], where the serial numbers and key values are interpreted as predetermined configuration parameters).*

As in claim 27, Thomas discloses the predetermined set of configuration parameters includes at least one of processor speed, disk drive size, and amount of random access memory (RAM) *(paragraph [0040], memory 306 and capabilities 312)*.

As in claim 28, Thomas discloses detecting fault in at least one of a software component and a hardware component in the machines in the computer network *(paragraph [0057])*.

As in claim 31, Thomas discloses copying data from another copy of the failed machine in the computer network into the replacement machine *(paragraph [0031], where it is interpreted that the replacement module manager 106 stores a copy of a[n eventually] failed blade machine 104 in memory 212 and copies and sends that data to a replacement blade machine 104)*.

As in claim 32, Thomas discloses the failed machine and the another copy of the failed machine in the computer network are selected from the group consisting of a front end server, a load balancer, an index server, and a cache server *(paragraph [0033], server blade)*.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7.   Claims 18 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thomas in view of Bossen et al. (U.S. PGPub 2003/0074598).

As in claims 18 and 29, Thomas teaches of an attempt to repair an identified fault in a failed machine, including the performing, identifying and assigning, and the generating with respect to the fault. However, Thomas fails to teach of executing the above processes in response to an unsuccessful repair of the failed machine. Bossen et al. teaches of executing recovery and replacement processes in response to an unsuccessful repair of a faulty machine *(paragraphs [0008] and [0049])*.

It would have been obvious to a person skilled in the art at the time the invention was made to have included the fault response as taught by Bossen et al. in the invention of Thomas. This would have been obvious because attempting to repair a faulted device and successfully repairing the fault device, instead of automatically replacing a device without attempting a repair, reduces the number of machines that actually need to be replaced, which, in turn, reduces the overall costs and resources necessary to sustain operation of a fault tolerant system.

*   *   *

8.   Claims 19 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thomas in view of Bossen et al., further in view of Myers Jr. et al. (U.S. Patent No. 6,959,268).

As in claims 19 and 30, the combined invention of Thomas and Bossen et al. teaches of an unsuccessful repair of a machine. However, the combined invention of Thomas and Bossen et al. fails to teach of determining an unsuccessful repair of a machine after a predetermined maximum number of attempts of repair. Myers Jr. et al. teaches of a maximum number of attempts to repair a device *(page 18 lines 51-52)*.

It would have been obvious to a person skilled in the art at the time the invention was made to have included an attempt threshold as taught by Myers Jr. et al. in the combined invention of Thomas and Bossen et al. This would have been obvious because including a repair attempt threshold reinforces assertion that a fault actually exists in a device, and that the device should be replaced. As a result, resources are conserved if a device is not faulty.

Conclusion

9.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

U.S. Patent No. 5,579,511 Cavasa et al. discloses configuration information used for device replacement.

U.S. Patent No. 6,092,169 Murthy et al. discloses reconfiguration of a computer system.

U.S. Patent No. 7,120,690 Krishnan et al. discloses replacement of devices with configuration updates.

U.S. Patent No. 5,790,775 Marks et al. discloses comparison of device configurations.

U.S. PGPub 2003/0237017 Jibbe et al. discloses configuration comparison.

10.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul Contino whose telephone number is (571) 272-3657. The examiner can normally be reached on Monday-Friday 9:00 am - 6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Scott Baderman can be reached on (571) 272-3644. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

PFC
12/4/2006

                                          SCOTT BADERMAN
                                   SUPERVISORY PATENT EXAMINER